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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,908	09/29/2000	Chun Huh	97.095	8977

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EXAMINER

DAY, HERNG DER

ART UNIT PAPER NUMBER

2128

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/675,908

Applicant(s)

HUH ET AL.

Examiner

Herng-der Day

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-12 and 14-18 is/are allowed.
- 6) ☒ Claim(s) 13, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/7/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is in response to Applicants' Response ("Response") to Office Action dated January 26, 2005, mailed April 5, 2005, and received by PTO April 7, 2005.

1-1. Claims 1-2, 12-16, and 18 have been amended. Claims 19-20 have been added. Claims 1-20 are pending.

1-2. Claims 1-20 have been examined.

Drawings

2. Figure 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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4. Claims 19-20 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

4-1. Claim 19 recites the limitation “dividing the first region into two regions, one of which represents a mixing region intermediate between swept and unswept regions”. However, as recited in step (b) of claim 1, “the distribution of components in each region being essentially uniform”. In other words, the distribution of components is essentially uniform in the first region. Therefore, without undue experimentation, it is unclear for one skilled in the art how to divide the first region into two regions and distinguish the mixing region from the swept region because the distribution of components is essentially the same in both regions.

4-2. Claim 20 recites the limitation “dividing the second region into two regions, one of which contains a fluid different from the injected fluid, and the second of which contains none of said different fluid”. However, as recited in step (b) of claim 1, “the distribution of components in each region being essentially uniform”. In other words, the distribution of components is essentially uniform in the second region. Therefore, without undue experimentation, it is unclear for one skilled in the art how to divide the second region into two regions with different fluids because the distribution of components is essentially the same in both regions.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6-1. Claim 13 recites the limitation “the component transport rate” in line 1 of the claim.

There is insufficient antecedent basis for this limitation in the claim.

Recommendations

7. Claim 1 recites the limitation “wherein a fluid ... to displace hydrocarbons” in lines 2-4 of the claim. For clarification purposes, the Examiner suggests that “wherein a fluid” be replaced with “wherein a displacement fluid”.

8. Claim 14 recites the limitation “mass transfer of each component” in line 5 of step (c). For clarification purposes, the Examiner suggests that “mass transfer of each component” be replaced with “mass transfer rate of each component”.

9. Claim 17 recites the limitation “component mass transfer” in line 2 of the claim. For clarification purposes, the Examiner suggests that “component mass transfer” be replaced with “component mass transfer rate”.

Allowable Subject Matter

10. Claims 1-12 and 14-18 are allowed.

11. Dependent claim 13 would be allowed once the above rejections under 35 U.S.C. 112, second paragraph, are overcome.

Applicants' Arguments

12. Applicants argue the following:

(1) "Applicants submit herewith a § 1.132 affidavit of a person skilled in the reservoir simulation art (co-inventor Gary Teletzke), to the effect that the cited portions in the claims do not require undue experimentation" (page 7, last line through page 8, second line, Response).

(2) "the antecedent basis has been clarified in the enclosed amended claims" (page 8, paragraph 3, Response).

(3) "independent claims 1, 14 and 16 are amended herein to include the phrase 'computer-implemented'" to overcome the 101 rejection (page 8, paragraph 4, Response).

(4) "the present claim amendments insert after 'percolation theory' in the independent claims (1, 14, 16 and 18) the modifying phrase, 'to provide fine-grid adverse mobility displacement behavior through functional dependencies'" (page 9, paragraph 1, Response).

(5) "There is nothing in Meakin to imply or suggest that percolation theory can be used 'to provide fine-grid adverse mobility displacement behavior through functional dependencies'" (page 11, paragraph 2, Response).

Response to Arguments

13. Applicants' arguments have been fully considered.

13-1. Applicants' argument (1) is persuasive. The rejections of claims 1-15 and 17 under 35 U.S.C. 112, first paragraph, in Office Action dated January 26, 2005, have been withdrawn.

13-2. Applicants' argument (2) is persuasive. The rejections of claims 1-18 under 35 U.S.C. 112, second paragraph, in Office Action dated January 26, 2005, have been withdrawn.

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13-3. Applicants' argument (3) is persuasive. The rejections of claims 1-17 under 35 U.S.C. 101, in Office Action dated January 26, 2005, have been withdrawn.

13-4. Applicants' arguments (4) and (5) are persuasive. The rejections of claims 1-6, 10-12, and 14-18 under 35 U.S.C. 103(a) in Office Action dated January 26, 2005, have been withdrawn.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to Applicants' disclosure.

Reference to King et al., "Predicting Oil Recovery Using Percolation", Physica A 266, April 1999, pages 107-114, is cited as disclosing using percolation in predicting oil recovery.

15. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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16. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30. Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Jean R. Homere can be reached on (571) 272-3780. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Herng-der Day *H.D.*
May 13, 2005

Thai Pham
Thai Pham
Primary Examiner
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